SnapBack Exact Manual

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Getting Started

System Requirements

Components of SnapBack

- SnapBack Server - a Windows NT/2000/XP backup server.
- SnapBack Client - a Windows based SnapBack server control console.
- SnapBack Recovery Disk - a single user backup and restore application.

This chapter includes descriptions and system requirements. Installation instructions can be found **here**.

SnapBack Server

The SnapBack Server for Windows NT/2000/XP is a kernel-mode server-based driver that allows real time backup from local hard drives (to the machine the SnapBack Server is installed on) to SCSI tape drives. The backup engine includes open transaction processing protection to allow uninterrupted operation of the server while the backup is taking place, as well as backup scheduling and integrated tape utilities. All interactions between SnapBack Server and the user are through the SnapBack Client program.

Server System Requirements

- IBM-AT (386 or above) or compatible
- Windows NT Server 3.51 and above
- Minimum of 16MB of RAM
- ASPI- or CAM-compatible SCSI Host Adapter
- ASPI or CAM DOS device driver (for hard drive recovery)
- Hard disk with a minimum of 11 MB of free RAM
- SCSI Tape Drive

SnapBack Client

The SnapBack Client program provides a graphical application interface to any connected SnapBack server. The application runs under Windows 95, Windows NT, Windows 2000 and Windows XP and includes comprehensive help.

SnapBack Client System Requirements

- IBM-AT (386 or above) or compatible
- Windows 95 or greater

SnapBack Recovery Disk

The SnapBack Recovery Disk is a DOS based application that runs on a single floppy disk. This is used to restore complete drives back from tape.

SnapBack Recovery Disk System Requirements

- IBM-AT (286 or above) or compatible
- MS or PC DOS 5.0 or higher
- 500K of free conventional RAM

- Mono, CGA, EGA, or VGA monitor

Why SnapBack

SnapBack Exact uses a novel approach to server data backup and restoration. This chapter will examine the problems with conventional backup technologies, explain the unique solution provided by the SnapBack system, and summarize the benefits and limitations.

Backup Blues

Most backup systems provide a great deal of activities for administrators and users. The backup software requires lists of included and excluded directories; servers sometime become inaccessible; special modules purchased, installed, and configured for applications that will be running during backup. In addition, backup operators require security rights for everything. The backup software often needs maintenance when security rights are modified or applications are added or deleted. Even after a backup system is properly set up, the administrator needs to review backup logs to ensure that the essential files aren't skipped because somebody in shipping left an order screen open before heading to Happy Hour.

Complex Recovery

Restoring a system can be a challenge as well. A disaster recovery can involve re-installing the underlying operating system; recreating user security profiles; re-installing the backup software; and, finally, restoring the application files. During this process the administrator is praying that the customer transactions weren't skipped because of that clown in shipping or a key directory from the new SQL manager wasn't omitted from the inclusion list.

File Follies

Pulling individual files isn't necessarily a walk in the park either. Backup programs use a proprietary tape format. Browsing for a file or opening a tape-based file just isn't possible. In the past, a user could tell an administrator the name of an archived file to be restored. Today, a user document may be dynamically linked to dozens of files in elaborate directory trees (restored any Web pages or Active X documents lately?).

The Trouble with Files

The problems with current backup systems are essentially problems with files. Backups based on files run under server control. The file server controls security, access, and processing of files. Since files require special handling in order to be shared, special software is required for open files. Since files are protected by security systems, backup software must have complete administrator access to the file system. Should a server fail, the server, backup software, and basic security must be recreated before component files can be restored. Backup software files are recorded in proprietary formats that only the creating software can decipher; hence, individual file recovery must be via backup software only.
Resourceful administrators and enterprising vendors have developed solutions to these problems. These solutions, however, are sometimes expensive, usually complicated, and almost never transparent to the network users.

The Image Approach

SnapBack Exact takes a completely different approach to the backup process. Rather than going through the server file system to access server data, a full binary data image is copied directly from disk to tape.

Absolute Backup

The SnapBack backup image contains everything on the server drives: the entire operating system, special server files, patches, updates – EVERYTHING. Problems with missing open files, separate restoration of security and the operating system, and re-installation of the backup software are solved completely.

During backup, SnapBack monitors all server disk activity. Open file and system writes are recorded in a dynamic caching system until they are committed to tape. This eliminates any problems with open files or the need for costly application-oriented add-on programs.

Peak Performance

Bypassing the server file system gives SnapBack an unparalleled advantage in backup performance. While file-based systems must traverse directories, check permissions and open, read, and close all files, SnapBack reads and writes directly to hardware. SnapBack monitors user access and momentarily suspends backup operations when users require server resources. The result is the fastest possible backup – without any perceptible decrease in server response to users.

Total Recall

SnapBack restore runs from any DOS bootable floppy. The recovery process is simple and direct. Boot to DOS from a floppy, put the tape in the drive, then restore the drives. Reboot the system. Everything is restored to the exact state it was in when the backup was created. No formatting, partitioning, or system installation is required.

Native Access

Since the SnapBack tape contains an absolute image of the source drives, it's possible to mount a tape as if it were a read-only drive. TapeDisk allows administrators and users to view, recover, or execute files directly from the tape. To an application program, a mounted tape appears to be the original media – no muss, no fuss, no missing files or lost links.

Benefits and Limitations

Remote or Local Control

The SnapBack Client is a Windows application that allows complete control and monitoring of the backup program. Client is a communication front end for the actual backup engine that runs on the server. Backup status, scheduling, control, diagnostics, and logs are all accessible from any workstation.

Automatic Restore

The SnapBack Recovery Disk can run in automatic mode to restore a preset configuration. Using the automatic configuration, administrators of remote sites can allow non-technical users to perform a disaster recovery.

Full DOS Support

SnapBack Exact includes a complete DOS-based version of SnapBack that supports backup, restore, and tape utilities. The DOS version allows additional functionality that server-only applications cannot:

Alien System Support

SnapBack is not limited to backing up DOS and NT/2000/XP partitions. Any operating system or data recorded on the drives will be faithfully backed up and restored to the system. The SnapBack Recovery Disk can back up and restore any BIOS-compatible or SCSI-based operating system including Unix, OS/2, Linux and Netware

Downed Server Backup

The SnapBack Recovery Disk will back up a downed server. This feature can be used to create an intermediate backup prior to attempting server file repairs. If a repair attempt fails or causes additional corruption the intermediate backup can be restored.

Hardware Upgrades

When using SCSI hard drives a SnapBack image can be restored easily to a larger drive. SnapBack volume expansion utilities make the additional space available to the server.

Limitations

An image-based backup has many advantages over file-based systems. The hardware basis for the image does create some limitations. Limitations inherent in the SnapBack method follow.

- Disk and tape drives must be physically connected to the server. SnapBack won't use devices attached to other servers. *The Client **can** run on any workstation or connected server.*
- The backup image is a direct copy of the physical drives on the system. Changes in the type of capacity or drives may require special handling. This may involve changes to the system BIOS configuration, use of the volume restore feature, or file-based server restore.
- The backup image is of the entire physical drive space, not the space actually used by files. Even if space isn't actually in use, the tapes must have enough capacity to store the entire physical drive image.

Backup images must include entire physical hard drives. Backup of individual partitions directories, or files is not supported.

Installation

Installing SnapBack Exact

To operate SnapBack Exact you must install the SnapBack Server on your server and the SnapBack Client on either the server or a workstation that is connected to the network.
The SnapBack Recovery Disk is required when you need to perform a full restore, it does not have to be prepared at installation time but it is it recommended that you test it before you really need it !

SnapBack Client Installation

The SnapBack client is installed using an attended installation program. The SnapBack Client can be installed on any workstation running Windows 95 or higher. Installation can be to a workstations local hard drive or to a network drive.

1.Insert the CD into the CD-Rom and wait for Autorun to open up the installation screen.
2.Choose the product you wish to install. Then click Open Here then OK. The installation of your product begins.
3.The first screen is an informational screen. Click **NEXT** to continue.
4.The next screen is the **License Agreement.** Please read this carefully. If you agree to the terms click **YES**. If you do not agree to the terms click **NO**. SnapBack will **not** allow you to continue the installation process unless you accept the terms of the agreement.
5.After you have accepted the terms of the **License Agreement**, you will see the SnapBack installation screen. Select the directory where you would like to install SnapBack. The default directory is **c:\Program Files\SnapBack\SnapBack Exact\Client**. To change the default installation directory, type a new directory path or click on the **BROWSE** button to select an existing directory.
6.The next screen asks you the Program Group you would like to create, by default this is in Programs\SnapBack
7.After SnapBack has copied files to the hard drive, please read the **Release Notes**.
To run the SnapBack Client simply click on the SnapBack Exact Client icon in the Start Menu.

SnapBack Server Installation

SnapBack Server is installed on the local hard drive of a server using an attended installation program.
The installation steps are:
1.Insert the CD into the CD-Rom and wait for Autorun to open up the installation screen.
2.Choose the product you wish to install. Then click Open Here then OK. The installation of your product begins.
3.The first screen is informational only. Click **NEXT** to continue.
4.The next screen is the **License Agreement**. Please read this carefully. If you agree to the terms click **YES**. If you do not agree to the terms click **NO**. SnapBack will **not** allow you to continue the installation process unless you accept the terms of the agreement.
5.After you have accepted the terms of the **License Agreement**, you will see the SnapBack installation screen. Select the directory where you would like to install SnapBack. The default directory is **c:\Program Files\SnapBack\SnapBack Exact\Server**. To change the default installation directory, type a new directory path or click the **BROWSE** button to select an existing directory.
6.After installation is complete, you will be asked to reboot the server. You must do this before SnapBack Exact can be used.

Making a Recovery Disk

What is the Recovery Disk?

The recovery disk is a DOS bootable diskette containing the files necessary to access tape drives, hard drives, and the SnapBack Recovery Disk application. This disk allows backup and recovery of your system without requiring the installation or operation of any operating system or network drivers on the server hardware. If you need to recovery your complete server, you use this Recovery Disk.
Note: The recovery disk only need be created once. No backup specific information is recorded on the disk. If the recovery disk is lost or damaged any DOS bootable disk with appropriate ASPI drivers and the SnapBack executables will work. If a server crash occurs, a Recovery disk and a recent backup tape are all you need to resurrect the server.

Building a Recovery Disk

What You Will Need

You will need to have:

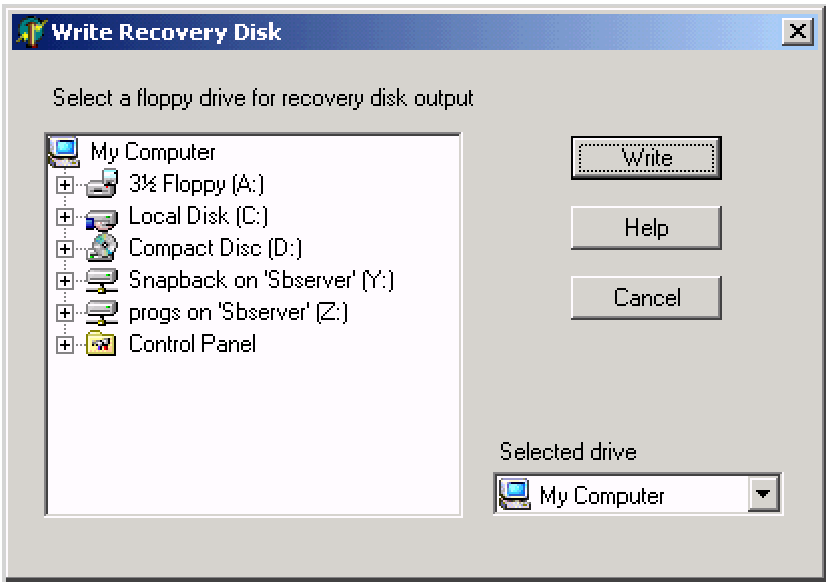
- A Working Installation of SnapBack Exact, logged into the Client.
- A blank floppy disk
- A fresh backup tape
- The DOS Driver for the SCSI Card your Tape Drive is connected to.

Building the disk

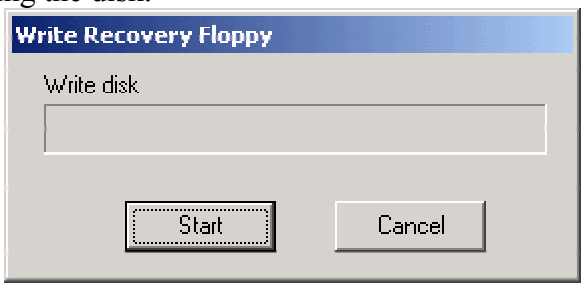
1a. Click either the Create Boot Floppy button on the SnapBack Client toolbar.

1b. Or the Rescue Disk option from the Restore menu in the SnapBack Client.

2. On the Write Recovery Disk window, select the floppy drive you wish to write to in the Selected Drive box making sure there is a Floppy Disk in the drive and that it is not set as Write Protected then click Write



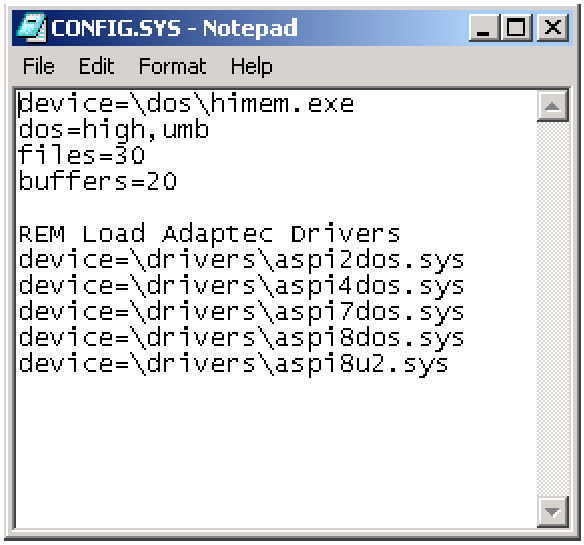
3. Click the Start button to start writing the disk.



Adding other DOS Drivers to the Recovery Disk

The SnapBack Recovery Disk comes pre-made with the DOS Drivers for Adaptec SCSI Cards. If your SCSI card is not an Adaptec then you will need to manually add the driver to the Recovery Disk.

1. Locate the DOS driver for the SCSI card your Tape Drive is connected to. For this example, we will call it driver.sys
2. After creating the Recovery Disk close the SnapBack Client and go to My Computer then 3.5" Floppy Drive
3. Double click on the Drivers folder. Copy driver.sys to this folder.
4. Go back and double click on config.sys - Windows will prompt you saying that it is a System File. Click Open With.
5. In the list that appears, locate Notepad, highlight it and click OK
6. You will see a file that looks similar to this:



7. Add a new line at the bottom that reads: device=\drivers\driver.sys (if driver.sys is the correct name of your driver).
8. Click File then Save.

9. Test the Recovery Disk to see if it's worked.

Testing the Recovery Disk

Note: It is ESSENTIAL that you perform a test restore before going live with SnapBack on your server !

The recovery disk is very useful for creating off-line backups and testing the system hardware in a simple single user environment. It is **essential** for restoring a backup on a failed server.

1. Reboot the file server with the recovery disk. It should boot from the floppy, load the ASPI files, and automatically load SnapBack.
2. Navigate through the menus. SnapBack should recognize the hard disks and tape drives attached to the system.
3. Use the Backup function to copy a hard drive to tape.
4. Use the Compare function to test the tape.
5. If there are no problems then the Recovery Disk is working correctly.

The SnapBack Client

The SnapBack Client is the Graphics User Interface to the SnapBack Server. With it you start backups, restore individual files, schedule backups, check the backup log and more.
You do not need to have the SnapBack Client running all the time, once the SnapBack Server is configured how you want it, you only need to load the Client if you encounter a problem, want to restore some files or check the log.
This part of the documentation describes how to use the SnapBack Client to configure, control and monitor the SnapBack Server.
The first step is to log in to the Server using the Client.

Logging On To Your Server

Logging in to the SnapBack Server

To use the SnapBack Client you must log in to a server that has the SnapBack Server software installed. This is necessary even if you have already logged in to the network. SnapBack authenticates the user to the network to ensure that an authorized user is accessing the backup program.
In file-based backup programs, the user performing the backup must have read and file scan rights to every drive and directory on the system. This is not a problem if the user an administrator. If not, the user application can't access all files on the system and an incomplete backup may result.
Since SnapBack performs an image-based backup, it overcomes this problem. SnapBack takes a complete snapshot of everything on the drive regardless of the security status of the user performing the backup.
To provide backup security access controls can be applied to the SnapBack Client program. This completely resolves the issue of incomplete backups due to inaccessible files and directories on the network.
Note: Even though a user with limited access rights is capable of backing up the entire system, restoring the image also restores the security settings in effect at the time the image was created.

Client Login

Server Selection

The SnapBack Client connects to any machine that is running the SnapBack Server. If the desired server is not listed in the drop-down list, type in the server name. You may also type in the IP address.
If the SnapBack Server is installed on the machine you are running the Client from you can also enter Localhost or 127.0.0.1 as the Server

User Name and Password

After entering the name or IP of the SnapBack server you want to connect to enter your network login information and click OK.
If the user name and password are correct, the main SnapBack Client window will be displayed. If they are incorrect, SnapBack will permit two more attempts before aborting.

Note -> The username and password for SnapBack are taken locally from user list on the server which the SnapBack Server resides on. If this server is a member of a domain then the domain user name and passwords are used.

Login Security

The operator must be a member of the SNAPBACK OPERATORS group for the selected server.
SnapBack creates a group called SNAPBACK OPERATORS during installation. The first user to log in to the SnapBack Server is automatically made a member of this group. To assign additional operators, use Computer Management (if the machine is not a member of a domain) or Active Directory Users and Computers (if it is a member of a domain) to add additional SnapBack Operators. No special security requirements, other than membership in this group, are necessary to complete a full system backup.

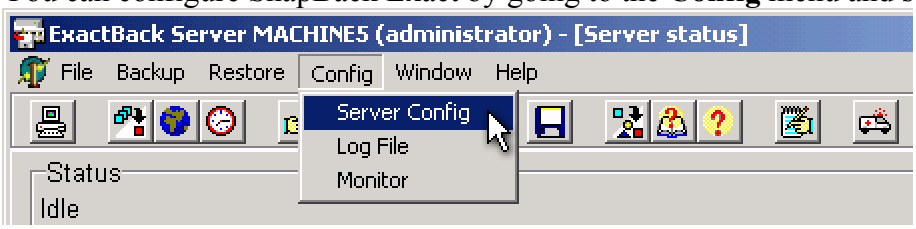
Additional Security

The SnapBack Server can be set to specifically allow a range or individual IP Addresses to connect to it.
A list of valid IP addresses is kept in the file **FILTERS.IP** located in the SnapBack installation directory. When this file does not exist, any IP address can log in using a valid user name and password. If the file exists, no IP address can log in except those listed in this file. The format of the file is one IP address per line. Wildcards can be used when specifying the IP address, as follows:
192.168.0.10
192.168.0.*
192.168.*
192.*
The first line allows only requests from 192.168.0.10, even if other IP addresses have valid user names and passwords. The second line allows requests from any node on network 192.168.0, and so on.

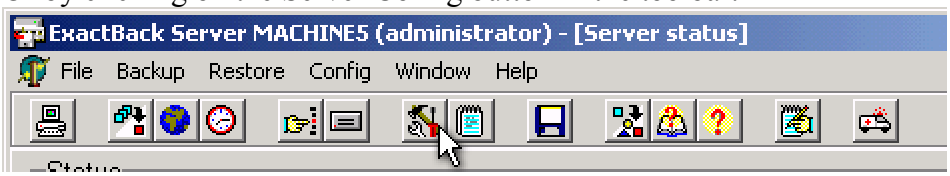
Configuration

Configuration

You can configure SnapBack Exact by going to the **Config** menu and selecting Server **Config**

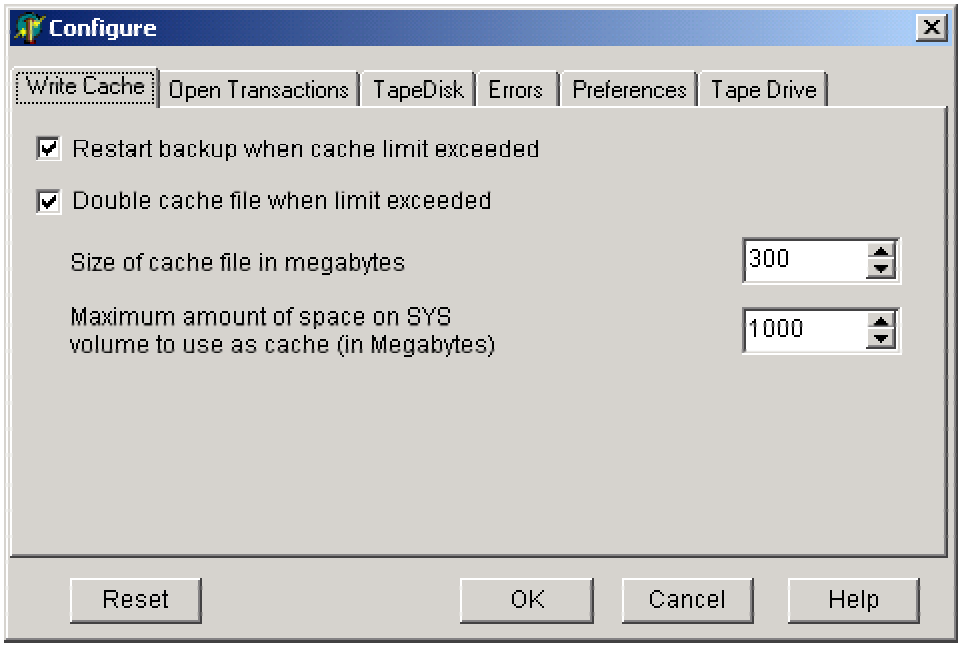


Or by clicking on the Server Config button in the toolbar.



This will open the Server Config window. Each of these tabs are explained in the following pages.

Write Cache



SnapBack flawlessly backs up all open files and transactions on your file server by using a cache file to preserve the server's data exactly as it was the instant that the backup was started.
SnapBack requires a cache file on the system partition (usually C) where it saves all the original unchanged sectors from your server before new disk writes replace them.
The sectors contained in the cache file are then backed up to the SCSI tape instead of the sectors that you changed when writing to a file. This way, a SnapBack tape takes a complete instantaneous picture of the hard drive, safely capturing all open files while your hard drive remains real time current.
SnapBack requires at least a 20 MB cache file in order to operate. If you feel that more data will be written to your server during backups, you can increase this amount to whatever you feel will be needed. Keep in mind, you must have this amount of free disk space on your system partition.

Size of cache file in megabytes

This is the size of the cache file that SnapBack will use, by default it is 20mb but it can be changes as necessary.

Maximum amount of space on SYS volume to use as cache

This is the maximum size the cache file will be allowed to grow to if Double cache file when limit exceeded is set

Restart backup when cache limit exceeded

If this option is set and during a backup the cache file fills up, SnapBack will restart the backup straight away from the beginning. It is recommended that this be on.

Double cache file when limit exceeded

If this option is set and during a backup the cache file fills up, SnapBack will set the next backup to use a cache file that is twice the size. If Restart backup when cache limit exceeded is also set, it will being a new backup with a larger cache file straight away. It is recommended that this be on.

Open Transactions

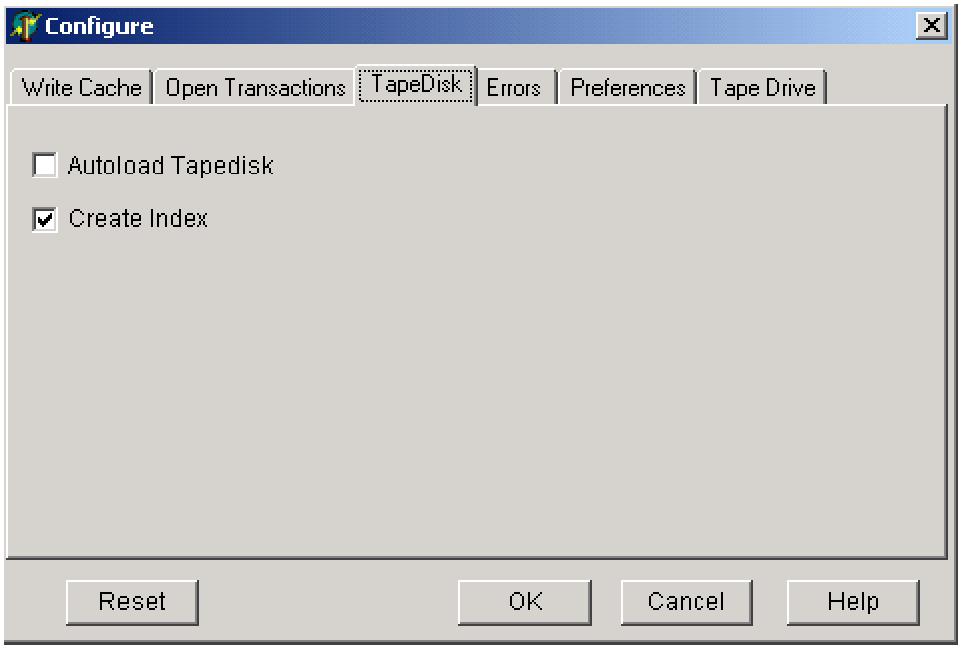
Quiescent Wait Time In Seconds

This option allows you to change the amount of time SnapBack will wait for server inactivity before starting a scheduled backup. This setting should not be set lower than the default of 10 seconds. This sets the amount of time that SnapBack will wait for disk activity before beginning the backup. This setting should not be lower than 4 seconds or corruption may occur.

Quiescent Wait Time In Minutes

This selection allows you to set how long SnapBack will actually wait for the time you have selected in the above setting, the default is 60 minutes. Using the default setting for Quiescent Wait Time In Seconds, if SnapBack cannot get a 30 second window at least once in the 60 minutes, the scheduled backup will be aborted. SnapBack will then remain idle until the next scheduled backup. This time can be set to whatever value you wish, with a maximum setting of 1440, which is 24 hours.

TapeDisk



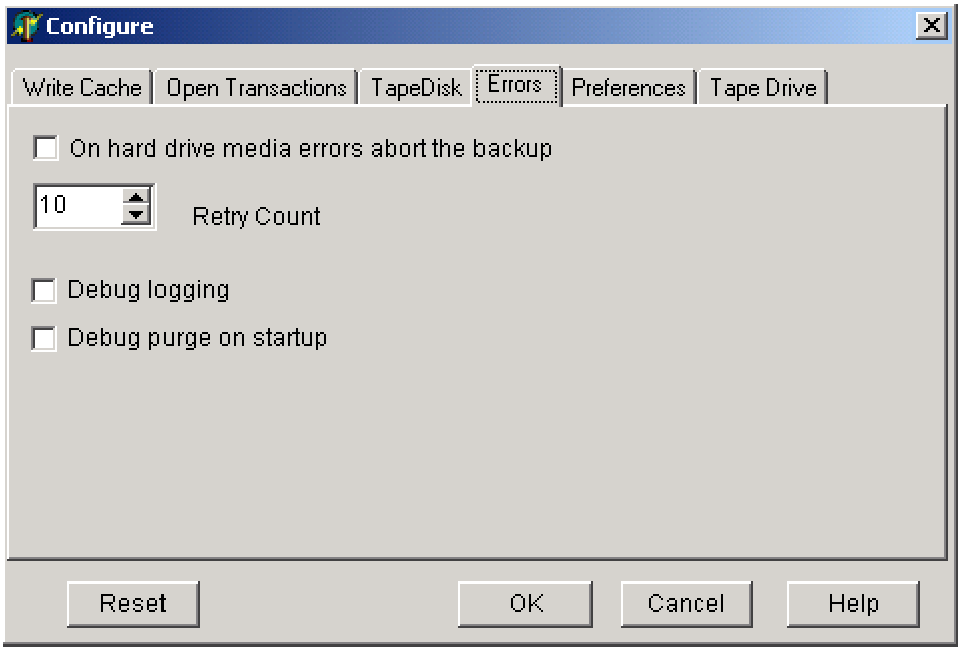
Autoload TapeDisk

This will automatically load TapeDisk whenever a successful backup is completed. TapeDisk can be loaded at any time. The default is to **not** load TapeDisk. SnapBack will prefix a period to the volume name (Volume C mounts as servername.C). This prevents confusion between the disk volume and mounted tape.

Create Server Index

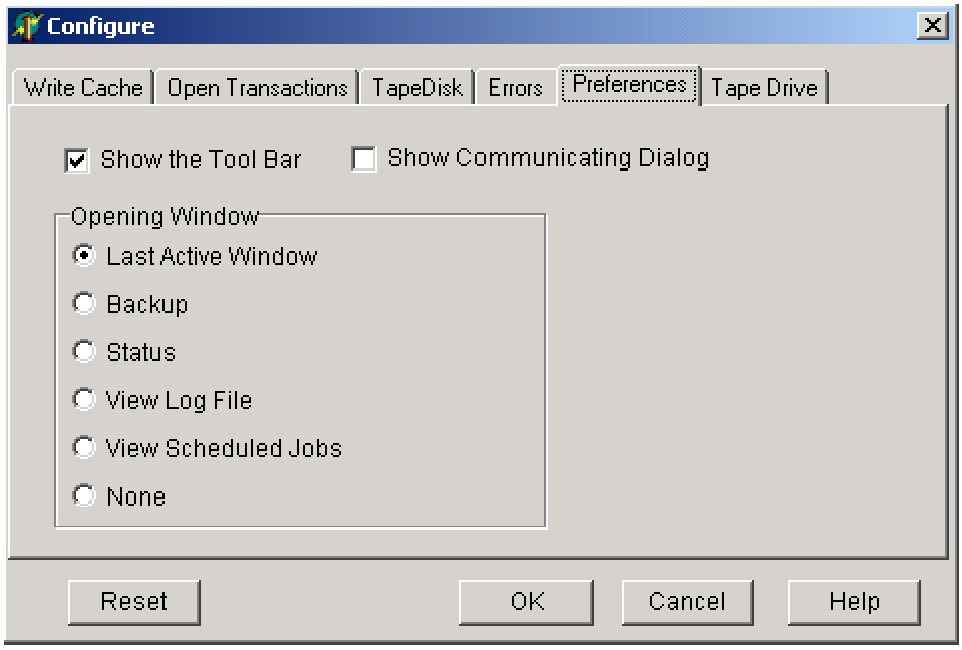
The server index overcomes much of the speed and fragmentation problems normally encountered when using serial media for direct access. This option is checked by default and should only be disabled during troubleshooting or when the backup device is close to capacity.
Note: The index requires tape space above and beyond the size of the disk image. Allow up to five percent additional tape space for index storage (e.g. 50 Meg per Gig).

Errors



The Errors screen will allow you to decide how you would like SnapBack to handle bad block errors if they occur during a backup.
If SnapBack encounters a data block read error from the hard drive (usually after the drive has already tried to recover from the error several times), it will try to re-read the data block as many times as specified in the Read Retry box.
If On Media Errors Abort The Backup is checked, SnapBack will abort the backup if it can not read a sector from the hard drive. If not checked , SnapBack will skip the sector, and continue with the backup.
SnapBack will automatically abort the backup if any MEDIA ERRORS are encountered during the backup process.

Preferences



This configuration screen allows control of the startup display of the SnapBack Console program.
Here you can choose which screen you would like to see when SnapBack is first loaded. If you would normally leave your screen on the scheduler, then have SnapBack load this screen automatically by clicking on the View Scheduled Jobs option.
You may also specify whether or not you want the toolbar visible at all times. The default for this option is checked .

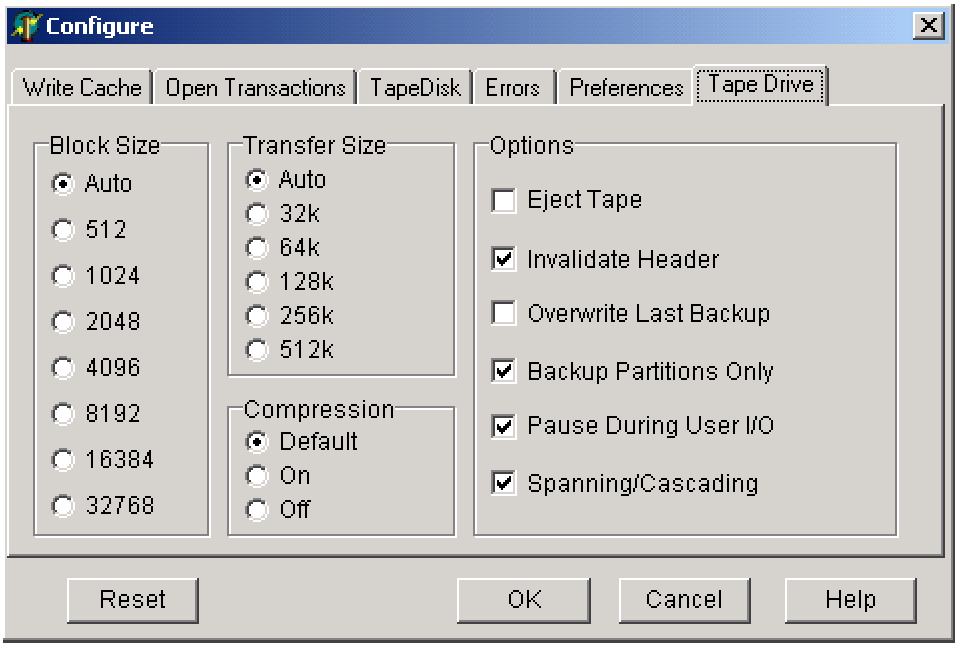
Show the Tool Bar

Specifies whether the toolbar is visible at all times. The default is **checked**.

Opening Window

Determines which screen to display when SnapBack loads.

Tape Configuration



Block Size

The Block Size is the physical block size SnapBack uses to write to the tape device. This is automatically configured to provide the maximum backup performance. It is recommended to be left on Auto

Transfer Size

The Transfer Size of the buffers used to transfer data to the tape device. Increasing the size of the buffer may increase the transfer speed on some tape drives but will require more memory from the cache buffers below 16 meg pool. It is recommended to be left on Auto

Compression

This sets the tape drive to use Hardware Compression (if available on the tape drive). For this to work, the tape drive must be set to "allow host control" this is usually set via dip switches on the bottom of the drive. Consult the manufacturers instructions on how to set this. (it is usually set to on).
Set the compression option to On to enable compression.
Set to off to disable compression.
Default will not attempt to change the setting on the tape drive.

Eject Tape

This option tells SnapBack whether to eject the tape upon a *successful* backup. If you are planning on mounting a volume after a backup is completed, then leave this setting at the default. If you will be storing your tapes after the backup, click on the box to set Eject Tape active. This will eject the tape after each successful backup. SnapBack will not eject the tape if the backup was aborted.
This is useful for monitoring the backups on a daily basis - if the tape was ejected, the backup was successful.

Invalidate Header

This setting, left at the default, will invalidate a backup tape if a problem occurs during the backup process. This is to prevent any misconception that a backup was good when it was not completed successfully.

Overwrite Last Backup

With this item set to the default, SnapBack will not overwrite the previous good backup tape. It is recommended this is enabled.

Backup Partitions Only

Enabling this option will cause SnapBack to backup only the partitioned area of the hard drive. For example, if you have a 2048mb Primary Partition and an 8096 MB Extended Partition on a 18 GB hard drive, SnapBack will only backup a total of 10144 MB and not the unpartitioned part of the drive. This means that you are still backing up unused space inside the partitions but not unpartitioned space ensuring you still have a complete image of the hard disk

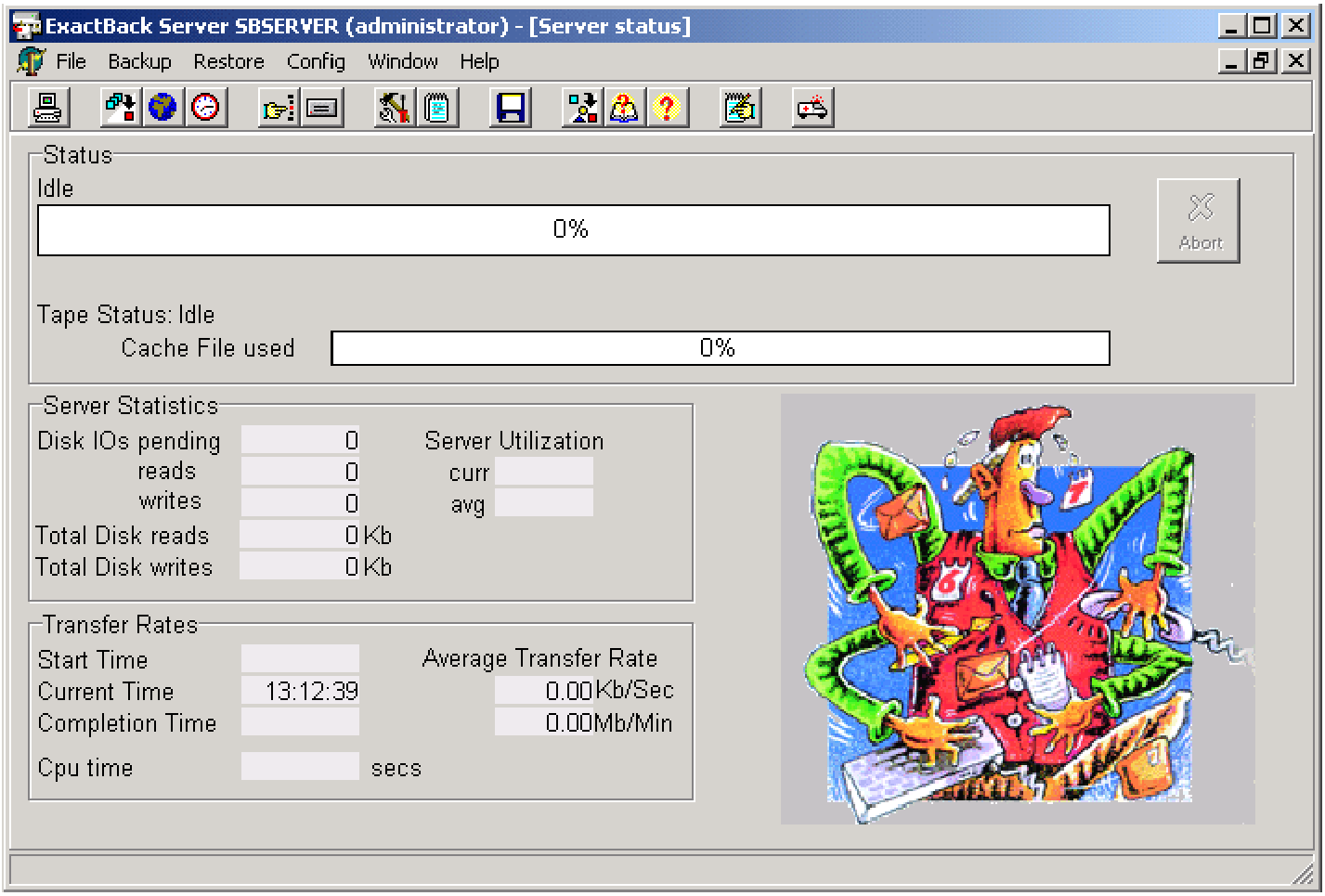
Pause during user I/O

With this setting enabled, SnapBack will pause the backup when ever a user I/O is sent to the server, giving the user top priority. We recommend leaving this option set to its default, which is checked.

Spanning/Cascading

This setting allows SnapBack to span tapes when backing up large hard drives, or cascading across multiple tape drives. In order to span or cascade, this option MUST be checked. The default is not checked.
Note: The TapeDisk option will not be functional if you span or cascade tapes.

The Status Screen



The Status screen shows current activity on the selected server. This is useful during an immediate backup in order to monitor the progress of the backup. The screen will also report activities triggered by other users (another user running the SnapBack Client) or backups triggered by the scheduler.
When a backup is in progress the image will be replaced with the list of drives being backed up in the current job.
Abort - Click this button to abort the current operation.
Status – Active function and progress.
Tape Status - Status of the tape drive —busy or idle.
Cache File Size - Percentage of cache space currently in use by the open transaction manager. This will increase as user files are buffered on the server and decrease as data is written to tape. If the status bar reaches 100%, the backup will abort. If the "**Double cache file when limit exceeded**" option is enabled, the cache size will be doubled before attempting another backup. If the configuration item "**Restart backup when cache limit exceeded**" under **"Write Cache"** is enabled, another backup will be attempted immediately. Otherwise SnapBack will resume its operations on the next scheduled backup.
Server Statistics - Various statistics about the selected server.
Disk I/Os Pending -Number of reads and writes waiting to be processed by the server.
Total Disk reads – Number of disk reads the server has completed since the beginning of the job.
Total Disk writes – Number of disk writes the server has completed since the beginning of the job.
Server Utilization - Percentage of server processing time being used by all processes.
Transfer Rate Status - The average rate shown reflects the total system performance of all server components. If the **Pause during user I/O** option is enabled, this average will be lowered slightly by users accessing the file server during backup. SnapBack will momentarily suspend an active backup to give users priority use of the hard drive.
Start Time - Time the current backup was started.
Current Time - Current server time.
Completion Time - Estimated time the backup will finish.

Cpu Time - The total time the processor has spent running the SnapBack Engine

The Log File Screen

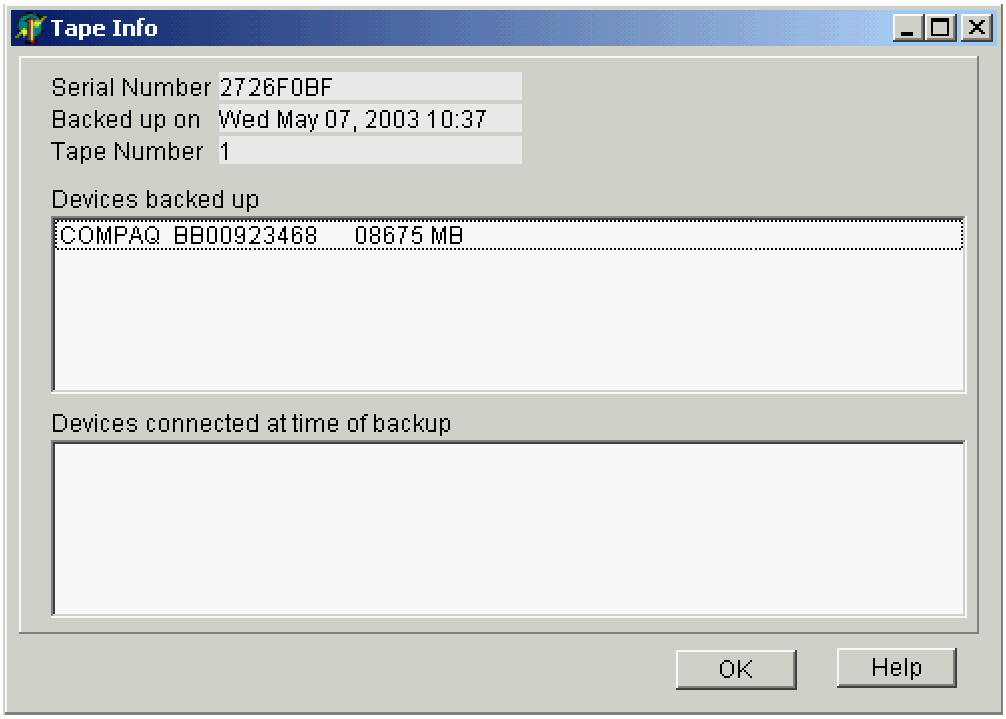
The Log File screen will keep a record of all SnapBack backups, and any problems that may have occurred during any of the various SnapBack functions. This log file will store ALL records until deleted. It is recommended that the log file be deleted periodically as to save disk space.
Note: Any errors that have occurred during one of SnapBack's procedures will be highlighted in red to make it easier for you to spot trouble should it occur.

View Scheduled Jobs

Modifying Backup Sets

Clicking the **JOBS** icon will show all scheduled backups for the selected server. Each horizontal line represents one backup set.
Days of the week are displayed in black with the current day displayed in white. Days which have a backup scheduled will show the backup time in the cell for that day. In the figure above backups are scheduled for Tuesday through Saturday and the current day is Monday.
The **Delete** button will remove the selected backup set from the server scheduler.

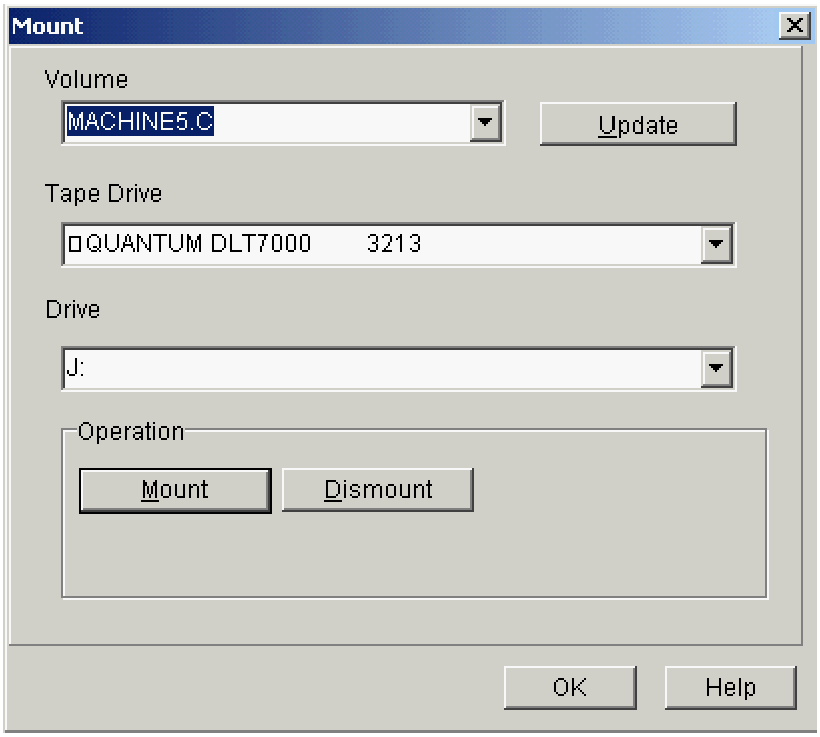
Tape Information Screen



SnapBack records a header record at the beginning of each backup tape. Clicking the **TAPE** icon will display the device images recorded on the tape as well as the date and time the tape was recorded.
If more then one tape drive is attached to the server, a selection menu (above) is presented. Select the tape device containing the tape you wish to examine.
The **TAPE INFO** provides the following:

- **Serial Number:** The serial number of the backup tape.
- **Backed Up On:** The date the backup was created.
- **Tape Number:** The number of this tape in the backup set.
- **Devices Backed Up:** The hard drives that were backup up on this tape.
- **Devices Connected At Time Of Backup:** All the hard drives that were attached to your server during the last backup operation.

TapeDisk



TapeDisk allows access to the backup tape just as if it were a read-only hard drive. Users can *copy*, *read*, and *execute* files directly from the tape.

Note: Do not use Explorer on a TapeDisk tape. Explorer reads icon images from every file on the drive. This causes very slow execution. Use other applications, such as a command prompt.

Mounting a backup tape will use the tape as an extension of the server. The mounted volume will act as another hard drive on the system allowing users to map directories and restore or run files from the tape.

First, click the **UPDATE** button. This will read the list of partitions off the tape and populate the list box.

Select the volume you wish to mount and click Mount.

All volume names from the tape are prefixed with an period to distinguish them from server names. **.C** is the default volume.

Mount - Mount a tape for file by file use.

Dismount - Use this before mounting a different tape.

System Restoration

Restoring a SnapBack tape creates an exact image of the drives that were backed up. The correct hardware must be in place before any restore operation. **You do not need to format or partition the replacement media.** SnapBack restores all formatting, boot sectors, partition table, operating systems, and file data to the replacement drives. SnapBack also scans the media as it restores and warns of any errors.
Please select the type of restoration you will be doing:

- **Complete Hard Drive Restoration**
- **Individual File Restoration**

Backing Up Your System

Backing up your Server - Now

Server backup is straightforward using SnapBack. Specify which drives to back up, which tape drive (or drives) will record the image, and when the backup should occur.

Selecting the Backup Drives

All drives available for backup will be listed on the left of the screen in the **Source Box**, under the heading **Available Items For Backup**.
Select each item to be backed up by **highlighting** the drive and clicking the **ADD** button, right click and select **ADD** from the drop down menu or Drag and Drop the item into the Items Selected for Backup window. The selection will move into the **Items Selected For Backup** box. You may add as many drives as you like to the backup set. You may remove drives from the selected backup following this same process.
Note: Even though the display image shows partitions and volumes, the selection is for complete hard drives. SnapBack saves entire drive images.

Select the Backup Destination

Click on the **Destination** tab to view all tape devices attached to the system. To select a destination device, highlight the device in the **Available Tape Drives** box and click the **ADD** button, or right click the item and select **ADD** from the drop down menu. If you only have one backup device SnapBack will automatically select it.
If you have more than one tape device, you can select a single device or **Cascade** from one drive to another. To **Cascade,** select the tape drives in the order you wish to use them. To **Span** or **Cascade,** you must enable the setting in the **Configuration Menu** .
Click **Backup Now** and SnapBack will immediately start the backup and display the status screen.

Backing up your Server - Scheduled

Scheduling a backup to run at a different time or on specific days is simple. First, click the Backup icon or select Create Backup from the Backup menu.

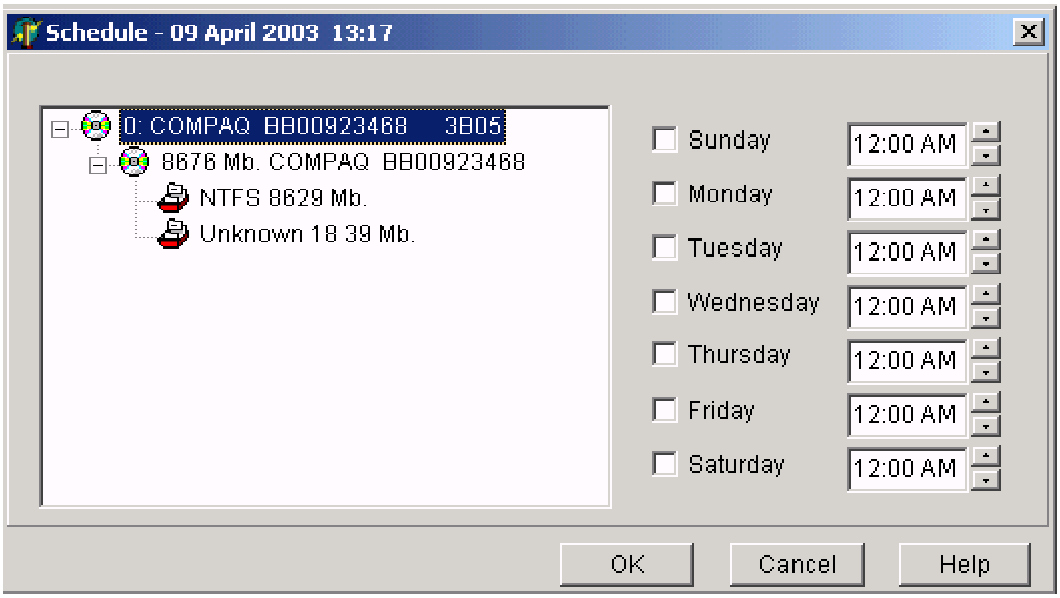
Selecting the Backup Drives

All drives available for backup will be listed on the left of the screen in the **Source Box**, under the heading **Available Items For Backup**.
Select each item to be backed up by **highlighting** the drive and clicking the **ADD** button, right click and select **ADD** from the drop down menu or Drag and Drop the item into the Items Selected for Backup window. The selection will move into the **Items Selected For Backup** box. You may add as many drives as you like to the backup set. You may remove drives from the selected backup following this same process.
Note: Even though the display image shows partitions and volumes, the selection is for complete hard drives. SnapBack saves entire drive images.

Select the Backup Destination

Click on the **Destination** tab to view all tape devices attached to the system. To select a destination device, highlight the device in the **Available Tape Drives** box and click the **ADD** button, or right click the item and select **ADD** from the drop down menu. If you only have one backup device SnapBack will automatically select it.
If you have more than one tape device, you can select a single device or **Cascade** from one drive to another. To **Cascade,** select the tape drives in the order you wish to use them. To **Span** or **Cascade,** you must enable the setting in the **Configuration Menu** .
Click **Backup Later** to select the days and times for backup.

Selecting Days and Times



The scheduling screen allows entry of the days of the week and times for the selected backup. The backup source, targets, and schedule are collectively termed a "backup set".
SnapBack allows scheduling of the backup for any day of the week at any time of the day. You can schedule a backup for every Monday at 5:30 PM, every Monday and Wednesday at 3:30 PM, or any combination of days and times.
To schedule a routine backup, click the day(s) and the time of day you would like a server backed up. Highlight any selection, such as hour, minute, or AM/PM, and type in a new value or click the up and down arrows to increase or decrease the displayed value.
When you click **OK**, the schedule will be stored on the server and the backup executed as scheduled.

Note: The SnapBack Console program** does not **need to be running when the backup is scheduled to occur. The SnapBack server program triggers and performs the backup.

Modifying Backup Sets

Clicking the **JOBS** icon or will show all scheduled backups for the selected server. Each horizontal line represents one backup set.
Days of the week are displayed in black with the current day displayed in white. Days which have a backup scheduled will show the backup time in the cell for that day. In the figure above backups are scheduled for Tuesday through Saturday and the current day is Monday.
The **Delete** button will remove the selected backup set from the server scheduler. **Modify** will return to the backup screens (see above) to allow changes to the set.

Recovering from a Disaster

System Restoration

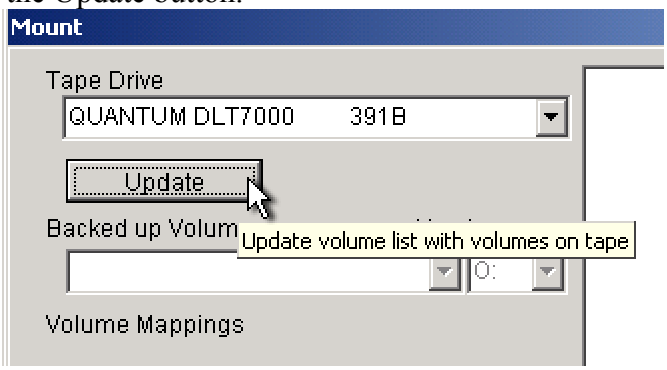
Restoring a SnapBack tape creates an exact image of the drives that were backed up. The correct hardware must be in place before any restore operation. **You do not need to format or partition the replacement media.** SnapBack restores all formatting, boot sectors, partition table, operating systems, and file data to the replacement drives. SnapBack also scans the media as it restores and warns of any errors.
Please select the type of restoration you will be doing:

- **Complete Hard Drive Restoration**
- **Individual File Restoration**

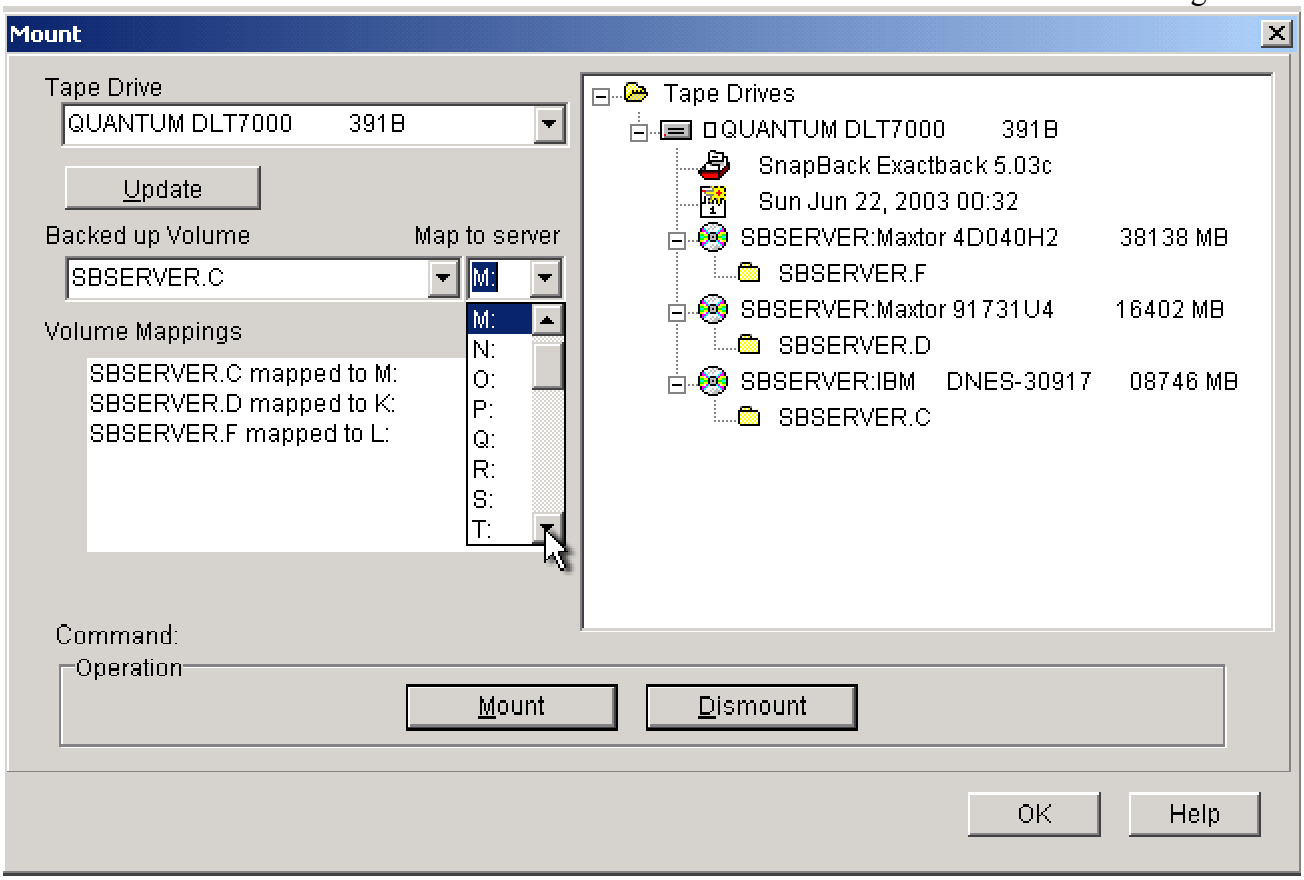
Individual File Restoration

If you need to restore a small number of files you can, using TapeDisk. It works by mounting the tape as a read only hard disk that appears as any other hard disk in My Computer. You can share it to others on the network as you would normally (although this is not recommended).
Since TapeDisk emulates a hard disk, when files are being copied from it, it can cause a tremendous amount of tape drive activity. Although a tape drive is fast when reading a long stream of data, it is extremely slow when it is seeking to a new position on the tape. Because of this, it is recommended that you defrag your hard disk on a regular basis.
Please note that TapeDisk is not designed for complete recovery of your data, it is designed as a solution to retrieve small amounts of files from the tape without having to perform a complete restore.
You can mount any SnapBack tape on any machine with a suitable tape drive. It is not tied to the originating machine.
To restore files:
1. Insert the tape you wish to restore files from in the Servers tape drive.
2. Load the SnapBack Client and **Login** to the SnapBack Server
3. Go to the TapeDisk icon in the Toolbar

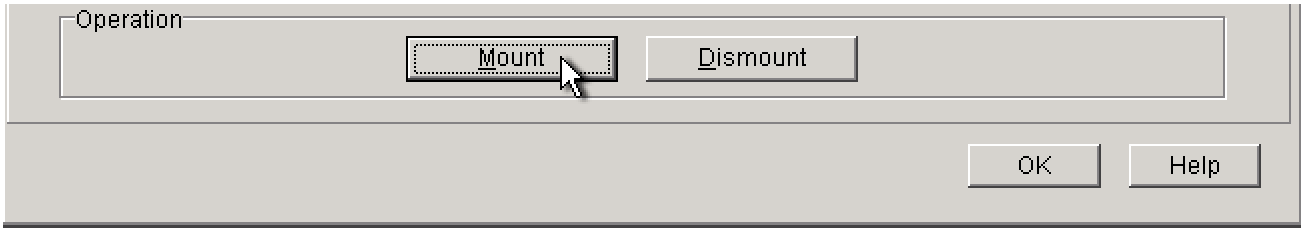
4. On the screen that opens, click the Update button.



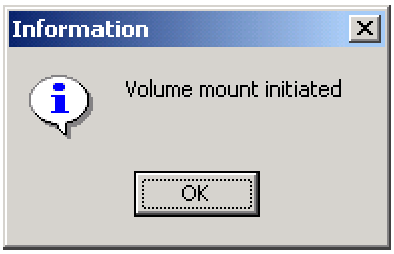
5. Select the volume you want to restore from the Volume list, then select an unused drive from the drive list.



6. Then click Mount



You will now get a message box saying the volume mount has been initiated and the tape drive will start reading the tape.



Depending on your tape drive, the amount of data on the system and whether you have Indexing enabled this can take anywhere from a few seconds to a few hours.
When the mounting is complete you will see your chosen drives and mappings in My Computer on the server and have new shares available.
Note: It is not recommended to use explorer to navigate your tape. Every file in every folder you are in is read to get it's icon and file information - this causes very slow access times. A Command Prompt is a better, and faster environment to work in when using TapeDisk.
Note: This drive is Read Only. You cannot write data to it.
For information on configuring TapeDisk please see the section entitled **TapeDisk Configuration**

Complete Hard Drive Restoration

When you restore a drive with SnapBack, you create an exact image of the drive that was originally backed up. The drive being restored must be at least as large as the backup image. If the image was the complete drive, the new drive must be as large as the original. If the image was of partitioned data only, the new drive must be as large as the partitioned area on the original.

Restoring a Drive

Note: You need a SnapBack Recovery disk properly made with the correct drivers for a complete restoration. If you have not done this yet, please read **here**

Performing the Restoration

Insert the floppy labeled **Disaster Recovery Disk** into the server floppy drive and type **SNAPBACK**.
Select **Restore** from the **Main Menu**.
You will see a list of the drives that were originally backed up. Use the cursor keys to highlight items in the list and the enter key to tag partitions to restore. Pressing F5 will tag all partitions and F6 will un-tag all partitions.
Press F2 to close the list and commence the restore.

Restoring Dissimilar Systems

Some special consideration must be given to restoring to dissimilar hardware. If at all possible, the replacement drive should be the same make and model as the original. If this is not possible, the replacement drive has to be at least as large as the original.
IDE drives have specific information about themselves stored in the CMOS memory chip on your motherboard. When your computer is turned on, your boot ROM reads this CMOS chip and uses these settings to talk to the hard drive. SnapBack needs these settings to be identical to the original drive so it will be able to restore your drive and operate properly.
In most cases, you should not change your CMOS settings when installing a new hard drive. If it doesn't work, you may then need to change your CMOS settings as follows: Go into your CMOS setup (refer to your motherboard manual for instructions) and view your current drive settings, for example:
Type 22, Cylinders=1069 Heads=35 Tracks=29
Write these down **NOW**. You should change the drive type while keeping the number of Cylinders, Heads, and Tracks the same as they were before you changed hard drives.
To do this, try to change to drive type 47, which will allow you to type in the Cylinders, Heads, and Tracks. If this drive type will not allow you to change these settings, refer to your motherboard manual or call **SnapBack** . Keep in close contact with us as we work to resolve this issue.
Even though the replacement drive might have a higher capacity than the original, it is not possible, at this time, to utilize the extra capacity on an IDE drive.

Making a Recovery Disk

What is the Recovery Disk?

The recovery disk is a DOS bootable diskette containing the files necessary to access tape drives, hard drives, and the SnapBack Recovery Disk application. This disk allows backup and recovery of your system without requiring the installation or operation of any operating system or network drivers on the server hardware. If you need to recovery your complete server, you use this Recovery Disk.
Note: The recovery disk only need be created once. No backup specific information is recorded on the disk. If the recovery disk is lost or damaged any DOS bootable disk with appropriate ASPI drivers and the SnapBack executables will work. If a server crash occurs, a Recovery disk and a recent backup tape are all you need to resurrect the server.

Building a Recovery Disk

What You Will Need

You will need to have:

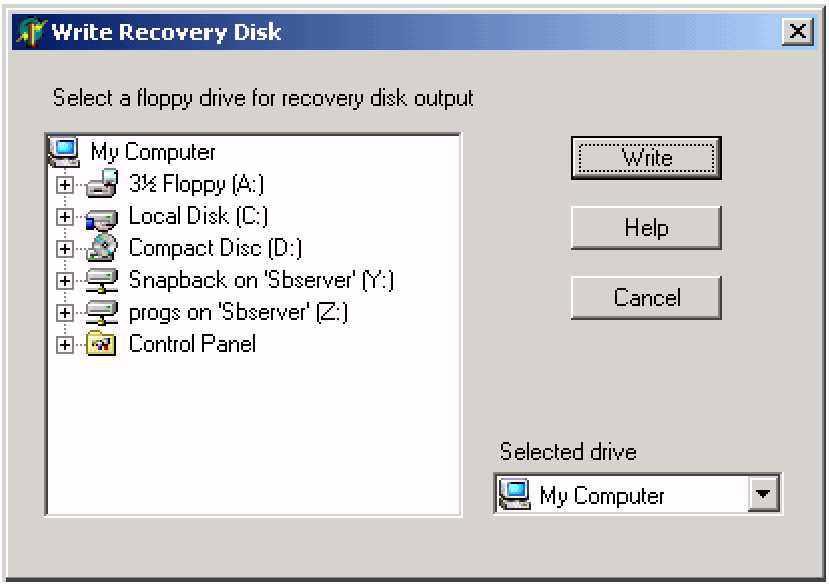
- A Working Installation of SnapBack Exact, logged into the Client.
- A blank floppy disk
- A fresh backup tape
- The DOS Driver for the SCSI Card your Tape Drive is connected to.

Building the disk

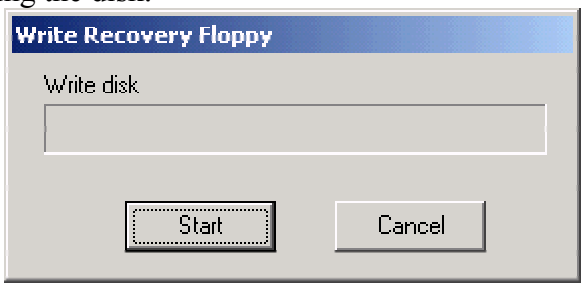
1a. Click either the Create Boot Floppy button on the SnapBack Client toolbar.

1b. Or the Rescue Disk option from the Restore menu in the SnapBack Client.

2. On the Write Recovery Disk window, select the floppy drive you wish to write to in the Selected Drive box making sure there is a Floppy Disk in the drive and that it is not set as Write Protected then click Write



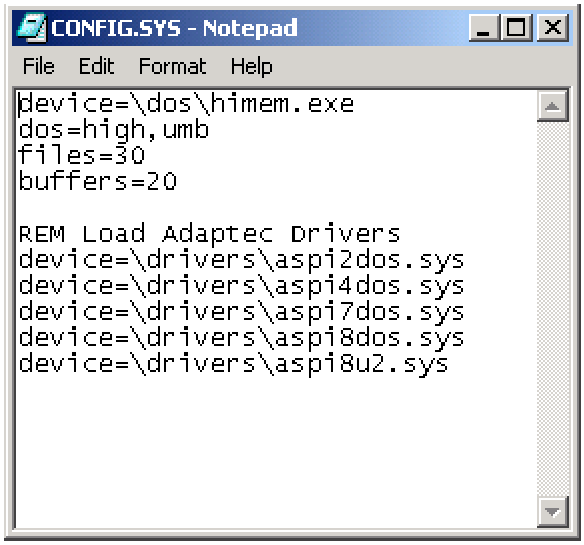
3. Click the Start button to start writing the disk.



Adding other DOS Drivers to the Recovery Disk

The SnapBack Recovery Disk comes pre-made with the DOS Drivers for Adaptec SCSI Cards. If your SCSI card is not an Adaptec then you will need to manually add the driver to the Recovery Disk.

1. Locate the DOS driver for the SCSI card your Tape Drive is connected to. For this example, we will call it driver.sys
2. After creating the Recovery Disk close the SnapBack Client and go to My Computer then 3.5" Floppy Drive
3. Double click on the Drivers folder. Copy driver.sys to this folder.
4. Go back and double click on config.sys - Windows will prompt you saying that it is a System File. Click Open With.
5. In the list that appears, locate Notepad, highlight it and click OK
6. You will see a file that looks similar to this:



7. Add a new line at the bottom that reads: device=\drivers\driver.sys (if driver.sys is the correct name of your driver).
8. Click File then Save.

9. Test the Recovery Disk to see if it's worked.

Testing the Recovery Disk

Note: It is ESSENTIAL that you perform a test restore before going live with SnapBack on your server !

The recovery disk is very useful for creating off-line backups and testing the system hardware in a simple single user environment. It is **essential** for restoring a backup on a failed server.

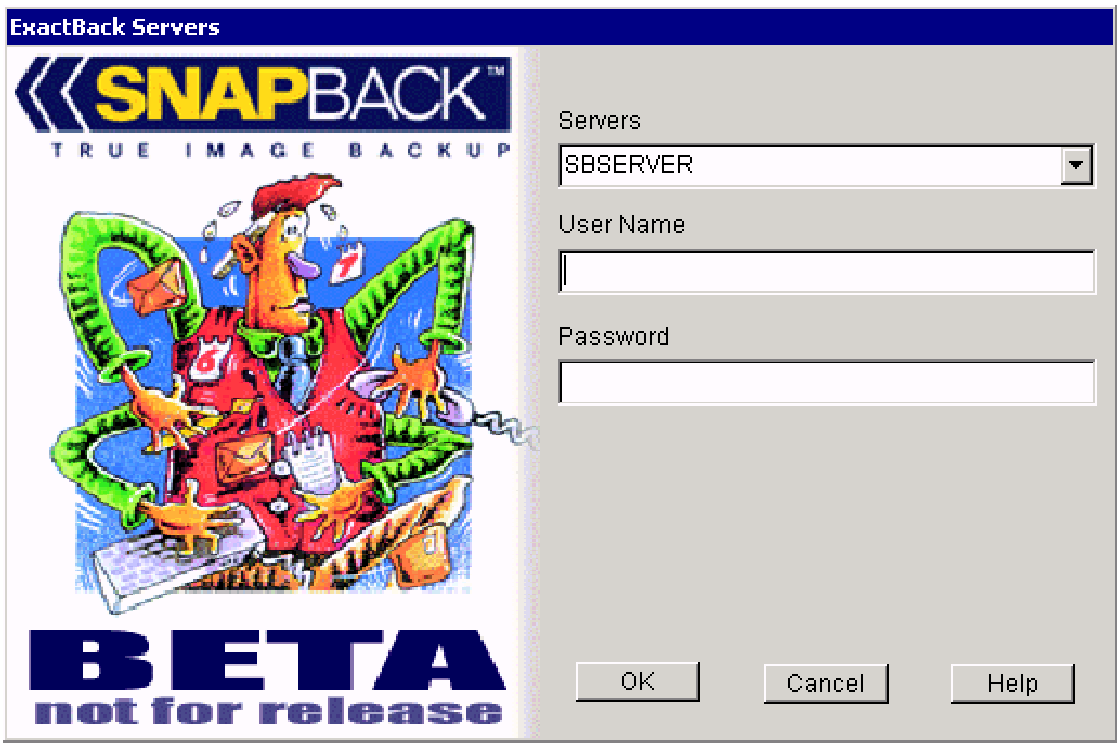
1. Reboot the file server with the recovery disk. It should boot from the floppy, load the ASPI files, and automatically load SnapBack.
2. Navigate through the menus. SnapBack should recognize the hard disks and tape drives attached to the system.
3. Use the Backup function to copy a hard drive to tape.
4. Use the Compare function to test the tape.
5. If there are no problems then the Recovery Disk is working correctly.

Troubleshooting

SnapBack Client Connection Problems

Please run through this following checklist if you are having problems connecting to the SnapBack Server from a SnapBack Client.

Do you have the correct Server name ?



Make sure the Servers box on the Login screen has the name of the server or it's IP address entered correctly.

Is the SnapBack Server service started ?

You can check this on the Server by going to Control Panel, Administrative Tools, Services. Search through the list for SnapServer. It should say it is Started. If it is not, attempt to start it by highlighting it then pressing the "play" button on the toolbar.

If the server does not start or fails in some way, check the log file for the reason why.

If it starts, try connecting again.

Is there a firewall between the SnapBack Client machine and the Server ?

The connection between the Client and the Server is done over standard TCP/IP using port x.

When troubleshooting connection problems the first step is to try and Ping the server you are trying to connection to. To do this, open up a Command Prompt (or DOS window) from your Start Menu and type in "ping servername" where servername is the name of the server. If you receive a response from it, try and connect using the SnapBack Client.

If you are connecting over the internet, or using a VPN to connect to the server, there may be a firewall between your machine and the server. You will need to make sure that the correct ports are open on the firewall and, if you're using NAT, are forwarded to the SnapBack server. Consult the instructions for your Firewall or Router for information on how to do this.

Backup Problems

The SnapBack Client status screen displays "Waiting x seconds for no disk activity", but never starts the backup.
The server hard disk must be completely idle before the backup can begin. By default SnapBack waits for 15 seconds of inactivity. Many programs running on the file server access the hard disk on a regular basis such as defragmentation software or antivirus software. You can reduce the amount of time that SnapBack waits for no disk activity by using the Console program. A wait time of less than five seconds may cause an invalid backup.

Restore Problems

When upgrading hard drives gets the message "missing operating system", "NO BOOT DEVICES FOUND", "INT 19h Boot Error", or similar message.
Check SCSI BIOS (Ctrl A for Adaptec controllers) for option similar to "Extended BIOS Support for drives > 1 GIG". Toggle this option to the opposite of its current setting; i.e. if this option is enabled, disable it. If it is disabled, enable it.
See **Restoring Dissimilar Systems**

Speed/Hardware Problems

Slow rates or slower rates than normal.
General Items

- Check tape format (120M/60M/90M,etc…)
- Check for bad tapes
- Check SCSI termination
- Check for termination power
- Check cable
- Verify the tape drive is good.
- If available, enable tape drive hardware compression.
- Check the SCSI ID assignments.
- Make sure hard drives are at a lower SCSI ID number than tape drives and CDROMs.

If the backup seems to have stopped midway and is not going any further, check the log. SnapBack may have detected bad blocks on the hard disk. Check the log for entries such as "Cyclic Redundancy Check Block x" (where x can be any number). If this is the case, and the same block number is repeated many times, this is an indication your hard disk is failing and needs replacing as soon as possible.

TapeDisk Problems

Only servername.c appears in the list
You must click Update to have TapeDisk read the partitions on the tape.
When using TapeDisk on volumes that have been spanned (either across drives or on the multi-segmented on the same drive), TapeDisk may be slower than normal accessing files.
Spanned files are widely fragmented across the tape and require a great deal of tape positioning to retrieve the data. There is nothing you can do about this other than keeping your drives defragged in the future.

Restore Workarounds

Use a Boot Manager

Boot manager programs provide an additional layer of geometry translation beyond the translation provided by BIOS. The boot manager can translate the physical drive parameters into a common geometry regardless of the physical device type. A 1.2 GB drive can *appear* to have the same geometry whether it is a SCSI or IDE drive without regard to the manufacturer of the drive or the server BIOS.
Using a boot manager can provide consistent geometry for physically different IDE and SCSI drives.
Note: If a backup image was created using a boot manager, the image must be restored using the same boot manager. Boot managers usually load from the hard drive during system restart. When restoring an image, the boot manager software must be installed on the Rescue Disk to allow geometry translation during the restore operation.
If you anticipate drive type changes due to hardware replacement or are using SnapBack to duplicate file servers, a boot manager can solve hardware compatibility problems. Select a manager that supports a standardized geometry for all operating systems. Disk Manager version eight from OnTrack meets this requirement.

Edit CMOS Geometry

CMOS memory stores hardware information used by the computer during startup. IDE parameterization information is stored in CMOS as well. Most systems include a CMOS editing program that allows modification of drive geometry.
Directly editing the CMOS parameters will allow the replacement drive to function correctly.
With the source drive in place, run the CMOS setup program (refer to your motherboard manual for instructions) to view the drive settings. A typical display would be:

Type	Cylinders	Heads	Tracks	Mode
47	1069	35	29	Normal

Write down these settings.
After installing the new drive, edit the Heads, Tracks, and Mode to match the drive being replaced. This will allow the drive to function properly but may not utilize the full capacity of the drive.

SnapBack Recovery Disk Problems

"Runtime error 101 : Disk write error".
Ensure that the SnapBack rescue diskette has some free space and is not write protected.
"Runtime error 202 Stack overflow".
Rename all the .CMD files to .OLD. This will keep SnapBack from getting tape drive specific information. The backup or restore should now be able to continue.
Various Out of Memory Conditions.
Run the DOS program MEMMAKER to increase the amount of available conventional memory.
Append **/overlay=40000** (or less) to the SnapBack command line. This will reduce the conventional memory requirement at the expense of execution speed.
"Media Changed" when at start or restore.
When doing a disaster image restore from the SnapBack Recovery Disk you may need to modify the .CMD file to reflect the proper block size of the tape. This should only be necessary when the SnapBack Recovery Disk does not have an existing .CMD file for your tape drive or when the Block Size has been changed in the SnapBack Configuration or automatically when the backup was made.
Add one of the following under the [NeedsCleaning] heading to the beginning of the CMD file:

Block Size	CMD Setting
512	Blocksize=1
1024	Blocksize=2
2048	Blocksize=3
4096	Blocksize=4
8192	Blocksize=5
16384	Blocksize=6
32768	Blocksize=7
(default)	

For example, to set the blocksize to 4096:
[NeedsCleaning]
blocksize=4
To find out which .CMD to change, look in the SNAPBACK.VRF file under VIEW_BEGIN "DeviceIDs". Find your drive and count the number of lines it is below the VIEW_BEGIN "DeviceIDs". Then go to the VIEW_BEGIN "DeviceFiles" and count down the same number. The text between the quotes is the filename for your tape drive. If SnapBack says that no device file exists for your tape drive, edit the default.cmd file.
If you cannot find your drive, or are lost, edit the SNAPBACK.VRF file and delete all lines between the VIEW_BEGIN "DeviceIds" and VIEW_END except for the line "DefaultCommands". Next, edit the default.cmd file with the above blocksize changes. It may be necessary to add the "[NeedsCleaning]" line to the file.

Restoring Dissimilar Systems

Some special consideration must be given to restoring to dissimilar hardware. If at all possible, the replacement drive should be the same make and model as the original. If this is not possible, the replacement drive has to be at least as large as the original.
IDE drives have specific information about themselves stored in the CMOS memory chip on your motherboard. When your computer is turned on, your boot ROM reads this CMOS chip and uses these settings to talk to the hard drive. SnapBack needs these settings to be identical to the original drive so it will be able to restore your drive and operate properly.
In most cases, you should not change your CMOS settings when installing a new hard drive. If it doesn't work, you may then need to change your CMOS settings as follows: Go into your CMOS setup (refer to your motherboard manual for instructions) and view your current drive settings, for example:
Type 22, Cylinders=1069 Heads=35 Tracks=29
Write these down **NOW**. You should change the drive type while keeping the number of Cylinders, Heads, and Tracks the same as they were before you changed hard drives.
To do this, try to change to drive type 47, which will allow you to type in the Cylinders, Heads, and Tracks. If this drive type will not allow you to change these settings, refer to your motherboard manual or call **SnapBack** . Keep in close contact with us as we work to resolve this issue.
Even though the replacement drive might have a higher capacity than the original, it is not possible, at this time, to utilize the extra capacity on an IDE drive.

Miscellaneous

ASPI Manager Compatibility List

Any SCSI host adapter with an **ASPI**, **CAM**, or **SDLP** Manager should work with SnapBack.
The Following is a PARTIAL list of SCSI Host Adapters compatible with SnapBack:

Adaptec 151x/152x/153x Series ISA	ASPI2DOS.SYS
Adaptec 154x Series ISA	ASPI4DOS.SYS
Adaptec 164x Series MCA	ASPI4DOS.SYS
Adaptec 174x Series EISA	ASPIEDOS.SYS
Adaptec 274x Series VLB	ASPI7DOS.SYS
Adaptec 284x Series PCI	ASPI8DOS.SYS
Adaptec 29xx/39xx Series	ASPI8DOS.SYS
Adaptec AIC 6260/6360	ASPI2DOS.SYS
Adaptec AIC 7770 SCSI	ASPI7DOS.SYS
Adaptec AIC 78xx Series	ASPI8DOS.SYS
Adaptec APA-348 MiniSCSI Plus	MA348.SYS
Adaptec APA-358 MiniSCSI Plus EPP	MA358.SYS
Adaptec APA-1460 PCMCIA	MA460.SYS
Always IN-2000 ISA	ASPIDRVR.SYS
AMI Fastdisk EISA	ASPIKERN.SYS
Compaq ProLiant Motherboard SCSI	FS2_ASPI.SYS
Compaq ProSignia/ProLinea Motherboard SCSI	WS2_ASPI.SYS
Compaq Smart Array Raid Controller	NONE REQUIRED
Compaq SCSI C710	SCSIC710.SYS
Corel LS2000 ISA	ASPILS_D.SYS
CSC AK-47 VLB	AK47ASPI.SYS
Dell SCSI Array	NONE REQUIRED
DPT (All Adapters)	DPTDDL.SYS
DTC 3x80/3x50	ASPI3X80.SYS
DTC 3290	ASPI3X80.SYS
Future Domain TMC-850 8-bit SCSI	DCAM50.SYS
Future Domain TMC-16xx 16-bit SCSI	DCAM1800.SYS
Future Domain TMC7000-FAST2 ISA	SSTASPI.SYS
Gateway Nomad Notebook SCSI Adapter	SSTASPI.SYS
HP RAID ARRAY	NONE REQUIRED
IBM PS/2 SCSI	ASPI4B.SYS
Laura Technologies TNT-40x0 ISA	SSTSDLP1.SYS
MYLEX DAC-960 RAID	NONE REQUIRED
NCR/ATT Model 3350 MB SCSI (NCR53C94)	CAMC9X.SYS
Parallel Technologies PAR-SCSI Converter	EGERT100.SYS
Promise DC-2040 ISA	SSTASPI.SYS
Qlogic	QLASPI.SYS
Tekram DC800 ISA	ASPIBMI.SYS
Tekram DC820 EISA	ASPIBME.SYS
Tekram DC880 VLB	ASPIBMV.SYS
Texas Instruments Notebook SCSI Adapter	SSTASPI.SYS
Trantor T-128/228	MA120.SYS

Trantor T-130B	MA13B.SYS
Trantor T-160/260 16-Bit SCSI	MA160.SYS
Trantor T-338 MiniSCSI	MA338.SYS
Trantor MiniSCSI Plus	MA348.SYS
Trantor MiniSCSI Plus (IBM)	MA348IBM.SYS
Trantor MiniSCSI EPP	MA358.SYS
Trantor MiniSCSI EPP (IBM)	MA358IBM.SYS
Trantor APA-460 16-Bit PCMCIA SCSI	MA360.SYS
UltraStor Ultra14/34	USPI14.SYS
Ul1traStor Ultra 14N	USPI14.SYS
UltraStor Ultra 24FA	USPI24.SYS
Western Digital WD7000-FASST2 ISA	SSTASPI.SYS
Western Digital TMC7000-EX EISA	SSTASPI.SYS
Western Digital WDC-ATXT ISA	SSTASPI.SYS

New devices are being added to the support list all the time. For the latest list please visit our website at **www.snapback.com**

Tape Drives

Any SCSI tape drive should work with SnapBack.
SnapBack uses a single **Tape Definition File** to provide drive specific information about the drive. All the information in the **Tape Settings** window is derived through the use of these files. In addition, these files provide compression statistics for drives that support hardware compression.
If the Tape Settings window displays "Unrecognized Device", SnapBack will function normally but won't display tape settings or compression statistics.

SnapBack Recovery Disk Command Line Options

The following options can be used to modify the operation of the SnapBack Recovery Disk. The options can be typed on the DOS command line (as shown in the examples) or placed in the file DEFAULT.CFG.
Multiple options can be specified on the DOS line separated by spaces. In DEFAULT.CFG multiple options are entered on separate lines.

SNAPBACK Command Options

?

Syntax:
SNAPBACK /?
Displays a list with descriptions of the SnapBack/DOS command line options.

AUTO

Syntax:
SNAPBACK /AUTO
Executes an automatic backup using the parameters saved as the automatic configuration.

ASPI

Syntax:
SNAPBACK /ASPI
Scans for ASPI disk devices.

BIOS

Syntax:
SNAPBACK /BIOS
Scans for disk devices using system BIOS instead of CMOS.

CAM

Syntax:
SNAPBACK /CAM
Scans for CAM disk devices.

COMPAQ

Syntax:
SNAPBACK /COMPAQ
Scans for Compaq Smart Array Raid Controller disk devices.

CPQPCI

Syntax:
SNAPBACK /CPQPCI
Scans for PCI Compaq Smart Array Raid Controller disk devices.

EB

Syntax:
SNAPBACK /EB
Scans for disk devices using an enhanced BIOS method. Use this option for IBM Valuepoint systems with enhanced IDE.

INT13

Syntax:
SNAPBACK /INT13
Scans for disk devices using interrupt 13H.

KEEP

Syntax:
SNAPBACK /KEEP
Keeps tape header intact if the backup fails. SnapBack normally invalidates the tape header when a backup fails.

LUN

Syntax:
SNAPBACK /LUN
Scans SCSI logical unit numbers zero through seven. The default is to scan LUN zero.

MONO

Syntax:
SNAPBACK /MONO
Displays using monochrome monitor.

MYLEX

Syntax:
SNAPBACK /MYLEX
Scans for Mylex DAC-960 RAID disk devices using firmware versions 2.x and earlier.

MYLEX3

Syntax:
SNAPBACK /MYLEX3
Scans for Mylex DAC-960 RAID disk devices using firmware versions 3.x and later.

NCR

Syntax:
SNAPBACK /NCR
Uses the NCR motherboard SCSI adapter.

NG

Syntax:
SNAPBACK /NG

Uses CGA-compatible graphics display. SnapBack normally uses a semi-graphical VGA display.

NOOVERWRITE

Syntax:
SNAPBACK /NOOVERWRITE
Aborts backup if tape inserted was last tape backed up (auto mode only). This option disables automatic tape formatting.

NOZEROBOOT

Syntax:
SNAPBACK /NOZEROBOOT
Does not zero the boot sector during restore. SnapBack normally zeros the boot sector at the start of a restore operation to prevent booting if the restore should fail.

OVERLAY

Syntax:
SNAPBACK /OVERLAY=###
Forces SnapBack to use an overlay buffer of '###' bytes. The default is 84,992. The minimum is 40,000.

SDLP

Syntax:
SNAPBACK /SDLP
Scans for disk devices using SDLP.

UPDATE

Syntax:
SNAPBACK /UPDATE
Updates DOS time from CMOS.

WIDE

Syntax:
SNAPBACK /WIDE
Scans SCSI target numbers zero through sixteen. The default is to scan targets zero through seven.

SnapBack WASH Utility

WASH.EXE is a DOS application used for clearing unallocated areas of the target disk. This prevents recovery of deleted files and improves backup performance when using tape drives with hardware level compression.
Run **WASH** [**DRIVE:**] [**/C:###**] from DOS,
where **DRIVE** is a drive letter from 'A' to 'Z', and
'###' is a number from 0 to 255 (this is the ASCII character number to use to wash the drive with).
The default drive is the current DOS drive and the default number is zero.
EXAMPLE:
WASH C:
would fill the unused areas on drive C: with zeroes.
WASH D:/C:13
would fill the unused areas on drive D: with thirteens.

SnapBack SCSI SCAN

SNAPSCAN.EXE is a DOS based application that displays information about a SCSI device for troubleshooting or general information.
Run **SNAPSCAN.EXE** from **DOS**.
Select a device from the **Devices Found** menu.
The next screen displays the following:

Vendor	Manufacture of device
Product name	Manufacture's device name
Product Revision	Firmware revision number
Unit Number	Interface type and SCSI Unit Number
Host Adapter	Host Adapter number (0-3)
Target	SCSI Target ID of the device (0-6)
LUN	Logical Unit Number of the device
Device Type	Type of SCSI device (i.e. DASD, Sequential, etc.)
Block Size	Block size of device (i.e. 512, 1024, 2048, etc.)
Number of Blocks	Capacity of device by blocks (DASD devices only)
Size	Capacity of device in megabytes (DASD devices only)
Interface	Protocol controlling device (i.e. ASPI, CAM, etc.)

Technical Support

An extensive knowledgebase is available for use on our website at **www.snapback.com/support** - should you be unable to solve your problem using the information available there then technical support is available weekdays from 9:00am to 5:00pm Local British Time. You may contact technical support via Email, Phone, Fax, or the World Wide Web.

Voice	+44 (0)1253 780044
Fax	+44 (0)1253 782879
Email	**technical@snapback.com**
WWW	**http://www.snapback.com**

Preparing to Call

The support staff will be better able to assist you if you are prepared for the call.

- Call from a telephone that is by your computer and be ready to try the Technical Staff suggestions.
- Have the following information at hand:
- SnapBack version and serial number
- Version and Revision of Windows
- Manufacturer, model, and revision of your computer, SCSI host adapter, and tape drive
- Manufacturer, version, and type of other peripherals in the machine

Glossary

A

ANSI: American National Standards Institute - An organization for the development and publication of standards such as computer interfaces.

ASPI: Advanced SCSI Programming Interface - An interface that enables a SCSI host adapter to handle communication between applications and SCSI devices.

B

BIOS: Basic Input Output Services - The computer program which enables a computer system to use input and output devices such as the keyboard, monitor, and disk drives. System BIOS is usually stored in ROM.

BLOCK SIZE: The number of bytes transferred to or from a device in a single operation.

BUS: The physical channel through which data transfer occurs in or between computer systems or peripherals.

BYTE: A common unit of computer storage. Made up of eight binary digits (bits). Typically the space occupied by a single printed character.

C

CAM: Common Access Method - An interface that enables a SCSI host adapter to handle communication between applications and SCSI devices.

CASCADE: Writing data to multiple output devices in sequence. As each device is filled the following device begins recording. On systems with multiple tape drives, SnapBack can cascade data onto the first tape in the SCSI chain until that tape is full, then to the second and so on.

CMOS: Non-volatile memory used to store system startup parameters.

COMPRESSION: Encoding of data to take up less storage space.

D

DASD: Direct Access Storage Device - A storage device which allows direct access to any location on the media without traversing all intermediate locations. A hard drive is DASD, a tape drive is not.

DAT: Digital Auto Tape - A high capacity magnetic tape digital recording technology originally developed for high fidelity audio.

DEVICE: A hardware peripheral connected to a computer system. Tape drives and hard disks are devices.

DEVICE DRIVER: Software that controls devices

DOS: Disk Operating System - A single user operating system for IBM Personal Computers or compatibles

F

FDISK: A DOS hard disk partitioning utility.

FILE SERVER: A computer which stores data files shared by other computers on a network.

G

GIGABYTE: GB, Gig - A little over a billion bytes or characters (a kilobyte cubed). Typically used to measure file, device, and memory sizes.

H

HOST ADAPTER: A device interface circuit card, typically a SCSI interface card.

I

I/O: Input/Output - General term for the methods and mechanisms for moving data into and out of a system.

IDE: Integrated Drive Electronics - A disk drive that contains standardized embedded controller electronics.

K

KILOBYTE: KB, K - 1024 bytes. Typically used to measure file and buffer sizes.

L

LUN: Logical Unit Number - Sub-identifier for a SCSI ID.

M

MEGABYTE: MB, Meg - 1,048,576 bytes or characters (a kilobyte squared). Typically used to measure file, device, and memory sizes.

MIRRORING: Writing duplicate data to two or more devices simultaneously.

P

PARTITION: A logical subdivision or section of a disk drive.

R

ROM: Read Only Memory - Computer memory that stores unchanging programs or data. Typically used for starting a computer or controlling devices.

S

SCSI: Small Computer System Interface - A logical and electronic access standard for computer peripherals defined by the ANSI committee.

SCSI ID: A unique number from zero through seven that is assigned to each SCSI device.

SDLP: Standard Device Partitioning Specification - Disk partitioning system used in early SCSI hard drives.

SFT: System Fault Tolerance - Methods, techniques, devices, and standards used for dynamically recovering from hardware failures.

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